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ETHNOMEDICINAL PLANTS USED BY THE ORAON TRIBALS OF LATEHAR DISTRICT OF JHARKHAND, INDIA

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ABSTRACT

An Ethnobotanical study of medicinal plants of tribal areas of Latehar District, Jharkhand was carried out to document the potentially important plant resources. The information on medicinal uses of plants is based on the extensive interviews with tribal healers who are practicing traditional knowledge of herbal treatment. The present study highlights useful Ethnobotanical information about the uses of plants by the *Oraon* tribes of the region.

Key words: Ethnomedicinal plants, Tribal medicine, *Oraon* tribe, Latehar.

INTRODUCTION

Medicinal plants play an important role in health care to humans since time immemorial. It has been observed that the Indian tribals have great love and knowledge of medicinal plants. They use them for wide range of health related problems [1]. The use of herbal treatment is increasing all over the world where the traditional knowledge has played a vital role. The tribal medicines are based mainly on medicinal plants found in their own locality. Information from ethnic groups or indigenous traditional medicine has played a vital role in the discovery of novel products from plants as chemotherapeutic agents [2]. The ethnic groups use the plants for food, fodder, medicine, drugs, clothing, agricultural implements, hunting, narcotics, poison, gums, dyes, insecticides and food etc. Hence, the field approach in the Ethnobotanical study of ethnobotany is a key source of information because it involves direct contact with an ethnic group for authentic traditional knowledge and medicinal plants.

Ethnobotany as a multidisciplinary science aims at investigating and inventorying traditional knowledge and Ethnomedicinal plants [1]. The state of Jharkhand is replete with Ethnomedicinal wisdom owing to a significant percentage of tribal population and rich biodiversity of medicinal plants [3, 4]. Traditional medicine men known as *vaidys* or *ojhas* form the primary health care provider in rural Jharkhand. However, not many records of

Ethnobotany of Jharkhand are found except a few researches done – Topno and Ghosh, 1999 [5], Sinha and Lakra, 2007 [6], Mondal and Rahaman, 2010, Laland Singh, 2012 [6], Bishnoi *et al.*, 2012 [7]. Documentation of Ethnomedicinal plants have been done by Bodding, 1925, 1927, and 1928 among the *Santal* tribe [8-10] and by Hembrom and Goel, 2005 among the *Munda* tribe [11]. Ethnomedicinal study among the *Oraon* tribe of Latehar District of Jharkhand is a new venture. The present study is the enumeration of Ethnomedicinal plants used by the *Oraon* tribals for the treatment of wide range of ailments.

MATERIALS AND METHODS

Study Area

Latehar district is one of the 24th districts of Jharkhand state created on 4th April, 2001 in Eastern part of India and Latehar town is the district headquarters [12]. The study area lies between 84° 31' E, 23° 44' N with an elevation of 1,073 ft [13]. The geographical area of the district is 3,651.59 sq kms with total population of 726,978 of which male and female are 369,666 and 357,312 respectively [12, 14]. The study area is covered with dense forests, hilly terrains and undulated fields. The forest area covers nearly 2245 sq. kms. which consists of rich biodiversity of flora with a tropical wet evergreen forests in the lower area, mixed (moist & dry) deciduous forests in the middle and temperate alpine forests in the upper

land[12, 13].The district presents diversities in climatic conditions with biting cold and mild summer and the rainfall of 2000 mm in the southern part and 1200 mm in the northern part [15]. Latehar is predominantly a tribal district with almost 40% of the population belonging to the Scheduled tribes of which the *Oraon* tribe is one of them. The study area is shown in Figure 1.

Collection of Data

The method of collecting information of the Ethnomedicinal plants was based on personal interview with tribal *vaidhyas* of various age groups residing in the villages of rural areas. The medicinal plants were photographed and the voucher specimens were collected along with the interviewed tribal *vaidhyas*. The collected data were compared and cross checked with the available data of the locally published booklets on medicinal plants to ascertain the validity. It was also observed that many villagers were acquainted with several medicinal plants used for common ailments like cold, cough, diarrhoea and dysentery. Some information was also collected by discussion with village *Ojhas*, teachers and village priests. The present Ethnobotanical research was put into field and literary research. The field trips for Ethnobotanical survey were made at different seasons to collect the Ethnobotanical species in flowering and fruiting stage.

RESULTS AND DISCUSSION

The wide range of Ethnomedicinal plants were identified and documented from Latehar Districts of Jharkhand. The data of most exploited medicinal plants such as the botanical name, family, vernacular name and the Ethnomedicinal usage are presented in Table 1. The enumeration of medicinal plants are arranged alphabetical order.

Some of the plants identified are considered to be sacred by the *Oraon* tribals and use them in their rituals done at birth, marriage and death. *Shorea robusta* (*Sal*) is grown in their sacred groves. *Sal* leaves (leaf cups & plates) are used for any ceremonial worship. Nine poles of *Sal* with fresh branches are erected in the courtyard to make marriage *pandals* [18]. The branches of *Semecarpus anacardium* (*Bhelwa*), *Lagerstroemia parviflora* (*Sidha*),

Madhuca indica (*Mahua*) and *Bambusa bambos* (*Bans*) are erected at the centre of marriage *pandals*. The tribals associate their festivals with the life cycle of some trees - *Sarhul* festival at the full bloom of *Shorea robusta* to pray for fertility of land and good harvest, *Phaggu* at the bloom of *Bombax malabaricum* (*Semal*) and *Ricinus communis* (*Erandi*). *Nauclea parvifolia* (*Karam*) is worshipped in *Karam* festival in which the saplings of *Zea mays* or *Shorgum vulgaris* are offered to *Karam* deity for healthy life, and the fruits of *Cucumis sativus* (*Kheera*) are offered to get good and healthy children from the deity [18].

The documented 67 herbal Ethnomedicinal formulations are used for 62 different kind of human ailments and consists of 72 plant species belonging 57 genera and 41 families. The plant parts used are mostly root / tubers 23 species, barks 15 species, leaves 13 species, whole plant 8 species, flowers 5 species, stem, fruits, seeds and latex/gum from 3 species each while the oil is used only from 2 species under present study (Figure 2). The tribal *vaidhyas* have acquired the Ethnomedicinal knowledge either from their ancestors or from the other reputed *vaidhyas* by training. The comparative studies show that most of the Ethnomedicinal plants used by the *Oraon* tribals are also being used by other tribals of Jharkhand for the same kind of ailments.

The Euphorbiaceae and Apocynaceae are found to be with the highest number of species (5) under present study followed by Combretaceae (4). Asteraceae, Malvaceae and Moraceae consist of 3 species each while Anacardiaceae, Asclpiadaceae, Celastraceae, Fabaceae, Myrtaceae, Scrophulariaceae, Solanaceae and Verbenaceae were found to have 2 species each while rest of the families are presented with 1 species each of the total documented medicinal plants. It was observed that the *Oraon* tribals mostly use paste formulations amounting 31 species while the other formulations are as follows – powder 17 species, decoction 12 species, chewing or making curry 12, pellets 3 species, infusion 4 species and oil 2 species under the present study (Figure 3).The number of formulations include black pepper, cow *ghee*, *jaggery* or *mishri* to sweeten the medicine. *Triphala churna* was found to be used by most of *vaidhyas* for stomach related ailments.

Table 1. Ethnomedicinal plants used by the Oraontribals of Latehar, Jharkhand

S.No.	Botanical Name	Family	Vernacular Names	Ethnomedicinal Usage
1	<i>Acorus calamus</i> Linn.	Araceae	Ghorbaj	Rhizome powder with <i>jaggery</i> or honey is given orally for epilepsy and also used as antibiotic. Rhizome power with water is given orally for worms in stomach. The powder with <i>ghee</i> is given orally for tuberculosis.
2	<i>Alstonia scholaris</i> R. Br.	Apocynaceae	Chatian	Bark paste is given orally for chest pain. The bark powder is mixed with the equal amount of root powder of <i>Ichnocarpus frutescens</i> and <i>Hemidesmus indicus</i> to make pellets, which are used for paralysis on treatment for three months. The bark powder is also used as

				antibiotic.
3	<i>Alternanthera sessilis</i> Linn.	Amaranthaceae	Gundru arxa	The root paste is applied on the forehead to treat headache.
4	<i>Anacyclus pyrethrum</i> DC.	Asteraceae	Akkarkara	Flowers are chewed for bleeding gums. Root decoction is used for male vitality and also for toothache.
5	<i>Andrographis echinoides</i> Nees	Acanthaceae	Nadnaur	Paste of whole plant is given orally with water for cobra bite. It is also applied in the body to stop spreading of venom.
6	<i>Argemone mexicana</i> Linn.	Papaveraceae	Bakula kanta	Paste of whole plant is applied around scrotum to treat hydrocele.
7	<i>Aristolochia indica</i> Linn.	Aristolochiaceae	Isharmul	Fresh or dried root paste of <i>Aristolochia indica</i> and <i>Rauvolfia serpentina</i> is given orally for snake bite. The paste is also applied in the body part of snake bite. Dried root powder <i>Rauvolfia serpentina</i> and <i>Aristolochia indica</i> is given orally for high blood pressure.
8	<i>Asparagus racemosus</i> Willd.	Asparagaceae	Kaisago,	The tuber decoction is given orally to treat leucorrhea, menstrual disorder and lactation. The powder of tubers is given orally to for male vitality and sexual debility.
9	<i>Boswellia serrata</i> Roxb.	Burseraceae	Salhai	The leaf paste is applied on the eyes for conjunctivitis. The decoction of the bark is given for anaemia.
10	<i>Butea monosperma</i> Lam.	Fabaceae	Murka	The infusion or decoction of flowers is given orally for sun stroke, also applied in the body. The seed powder is given orally for worms. The decoction of the bark is given orally for diarrhea and dysentery.
11	<i>Calotropis gigantea</i> Linn.	Asclepiadaceae	Gadsa	The paste of root bark is applied as painkiller for snake bite (viper).
12	<i>Cassia fistula</i> Linn.	Caesalpiniaceae	Sonarkhi	The paste of root bark with black pepper is given orally for snake bite (cobra). In case of Karait poison, the root of <i>Ichnocarpus frutescens</i> is added in the above preparation.
13	<i>Celastrus paniculatus</i> Willd.	Celastraceae	Munjni, Kujur	The seed oil is given orally to kids to increase intelligence and also to treat tuberculosis. The warmed oil applied on the scrotum to treat hydrocele. The oil is also used as antibiotic.
14	<i>Centella asiatica</i> Linn.	Apiaceae	Muxa arxa	The curry or chutney is consumed to increase intelligence. The paste is dissolved in a cup of water and <i>mishri</i> is added. It is taken orally to treat jaundice and diarrhoea.
15	<i>Curculigo ochioides</i> Gaertn	Hypoxidaceae	Dinda kita	The root powder is given orally for sexual weakness, impotency and erectile dysfunction in men. Women are given for menstrual disorder and leucorrhoea.
16	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	Sindwair banda	The whole plant is fried and crushed in oil of <i>Celastrus paniculatus</i> which is used as massage oil for polio and arthritis.
17	<i>Dalbergia sissoo</i> Roxb.	Fabaceae	Shisham	The powder of tender leaves is given orally to produce strong semen in men. The paste of matured leaves is applied on forehead to treat headache.
18	<i>Datura metel</i> Linn.	Solanaceae	Karia Dhatura	The seeds are used as poison and hallucinogen. The pellets made of leaves <i>Datura</i> and <i>Adhatoda vasica</i> are given orally for asthma.
19	<i>Diospyros tomentosa</i> Roxb.	Ebenaceae	Tendu, Tela	The black bark is burnt in the fire to exorcize evil spirits. A fresh branch is erected in the paddy fields to protect from evil eyes. The paste of young fruits is applied to treat elephantitis.
20	<i>Elaeodendron</i>	Celastraceae	Ratangaur,	The paste of bark is used in inflammation for snake

	<i>glaucum</i> Pers.		Niuri	bite (viper). In case there has been gangrene, the paste is applied much thicker.
21	<i>Elephantopus scaber</i> Linn.	Asteraceae	Minjur chundi, Minjur jhuti	The root paste is administered orally to treat diarrhoea and bed wetting by kids.
22	<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	Sanni dudhi	The paste of whole plant is given orally with <i>mishri</i> in a glass of water for diarrhea and dysentery.
23	<i>Ficus benghalensis</i> Linn.	Moraceae	Bar, Bara	The aerial-hairy roots are chewed to increase male vitality and also to treat pyorrhea. The latex of tree is collected in sugar-candy and consumed for impotency. The latex is also collected in a piece of cloth and used as sticker to treat mumps.
24	<i>Ficus infectoria</i> Roxb.	Moraceae	Phutkal arxa	The decoction of tender buds is given orally for diarrhoea and dysentery. The boiled tender leaves are also consumed as vegetable.
25	<i>Ficus racemosa</i> Linn.	Moraceae	Dumbari	The root sap is added with <i>mishri</i> and given orally to treat jaundice. The unripe fruits are chewed and eaten for female infertility.
26	<i>Hemidesmus indicus</i> R. Br.	Asclepiadaceae	Badi dudhia larang	The root is used for making massage oil for polio and skin disease.
27	<i>Hibiscus rosa-sinensis</i>	Malvaceae	Gurhal, Lal Udhuul	The flowers are eaten with <i>jaggery</i> to treat Leucorrhoea.
28	<i>Holarrhena antidysenterica</i> Linn.	Apocynaceae	Koreya, Kurchi	The paste of bark or root bark is given orally to treat gastric, diarrhoea and amoebic dysentery patients.
29	<i>Ichnocarpus frutescens</i> Linn.	Apocynaceae	Dudhi latar	The root paste is given with honey for <i>Rangbad</i> (baby sickness).
30	<i>Lannea coromandelica</i> Houtt.	Anacardiaceae	Kashmal, Luddi	The root is tied around the neck to treat small pox and chicken pox. The resin is applied to treat mumps. The paste of the bark is applied externally to treat gout.
31	<i>Limnophila conferta</i> Benth.	Scrophulariaceae	Muchari arxa	It is used as vegetable for stomach and intestine related diseases.
32	<i>Litsea polyantha</i> Juss.	Lauraceae	Meda	The bark paste is applied for bone fractures and bruises and boils.
33	<i>Lycopodium clavatum</i> Linn.	Lycopodiaceae	Sanjivini	The root paste is given for weak memory, confused thought and bed wetting by children.
34	<i>Madhuca indica</i> Gmel.	Sapotaceae	Madgi	The alcohol distilled from the dried flowers is used for administering several herbal medicines. The infusion of flowers are taken orally for anaemia. The tonic prepared from flowers and <i>jaggery</i> is given orally to treat irregular menstruation and leucorrhoea. The seed oil is used for massaging in sprain and body pain. The decoction of the bark is used for diabetes.
35	<i>Mirabilis jalapa</i> Linn.	Nyctaginaceae	Jahai juhi	The solution of tuber paste is given orally to treat snake bite.
36	<i>Nicotiana tabacum</i> Linn.	Solanaceae	Tamku	The dried leaf is soaked with water and tied around scrotum to treat hydrocele.
37	<i>Nyctanthes arbor-tristis</i> Linn.	Oleaceae	Murjhatni	The decoction of leaves and the bark is used against malaria, chronic wounds, and menstruation disorders.
38	<i>Oroxylum indicum</i> Vent.	Bignoniaceae	Dugdowel	The bark paste is applied on the back for backache. The powder of the bark also is administered orally to treat backache. The bark of <i>Oroxylum indicum</i> and the bark of <i>Gardenia turgida</i> (Kharha, Karhal) are powdered and dissolved pure liquor of <i>Madhuca indica</i> . The solution is given orally to treat mad dog bites.
39	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Kisspunji arxa	The leaves are made into paste with black pepper and given for typhoid.

40	<i>Phyllanthus emblica</i> Linn.	Euphorbiaceae	Aonra, Anra	The fruit powder is used as an ingredient for <i>Triphala churna</i> used for gastric. Triphala is prepared by mixing equal amounts of fruit powder of <i>P.emblica</i> , <i>T.belerica</i> and <i>T.chebula</i> to which powder of <i>Zingiber officinale</i> and rock salt are added for taste.
41	<i>Phyllanthus niruri</i>	Euphorbiaceae	Bhuin-amla, Hajardana	The paste of whole plant is given orally to treat jaundice.
42	<i>Phyllanthus virgatus</i> Forst	Euphorbiaceae	Bhuin amla lal, Jar amla	The paste of whole plant is given orally to treat jaundice.
43	<i>Piper longum</i> Linn.	Piperaceae	Pippali	The powder of dry fruit is given with honey for cold, cough and hiccups.
44	<i>Plumbago zeylanica</i> Linn.	Plumbaginaceae	Chitavari	The root of plant is tied above the ankle of the leg of same side of swollen scrotum in hydrocele.
45	<i>Psidium guajava</i> Linn.	Myrtaceae	Tamras, Bihi	The tender leaves are chewed and swallowed to treat diarrhea.
47	<i>Pterospermum acerifolium</i> Linn.	Malvaceae	Makchund	Infusion or decoction of petals is used in sunstroke, leucorrhea and jaundice.
48	<i>Rauvolfia serpentina</i> Linn.	Apocynaceae	Nagbael	Fresh or dried root paste of <i>Rauvolfia serpentina</i> and <i>Aristolochia indica</i> is given orally for snake bite. The paste is also applied in the body part of snake bite. Dried root powder <i>Rauvolfia serpentina</i> and <i>Aristolochia indica</i> is given orally for high blood pressure. Root powder is used as antibiotic and also for pneumonia.
49	<i>Rauvolfia tetraphylla</i>	Apocyanaceae	Koha Naagbel	The root powder is given orally to treat high blood pressure. The root paste is applied on chronic wounds.
50	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Digherendi	The tender leaf is applied with mustard oil. The leaf is then warmed over fire and tied around the scrotum to treat hydrocele. One seed is crushed and consumed with water to treat gastric and kidney stone.
51	<i>Scoparia dulcis</i> Linn.	Scrophulariaceae	Mitha unni	The paste of whole plant is taken with <i>mishri</i> for jaundice and diabetes.
52	<i>Semecarpus anacardium</i> Linn.	Anacardiaceae	Kiro	The twig is planted in the paddy field to protect from evil eye.
53	<i>Shorea robusta</i> Gaertn.	Dipterocarpaceae	Sakhu, Makka	The resin is given orally for worms in the stomach. The seed powder is given orally to treat diarrhea and dysentery.
54	<i>Sida cordifolia</i> Linn.	Malvaceae	Bariar, Lar-lari	The leaf paste is given orally for rheumatism, leucorrhoea and invigorating.
55	<i>Smilax macrophylla</i>	Smilacaceae	Rampawan	The twig is used for brushing teeth to treat sexual weaknesses and for male vitality.
56	<i>Soymida febrigfuga</i> Juss.	Meliaceae	Ruhen, Rohin	The bark powder or decoction is given orally for dysentery with blood. The decoction of the bark is also used for menstrual disorders. It is also used for removal of placenta after the childbirth.
57	<i>Spermocoe hispida</i> Linn.	Rubiaceae	Satgitthia, Bhuinjamun	The pellets made of tuber is given orally with water to treat arthritis.
58	<i>Syzygium cuminii</i> Linn.	Myrtaceae	Jambu	The decoction of the bark is used against diabetes and diarrhoea. The syrup made of ripe fruits is used for diarrhea. The seed powder is also used for diarrhea.
59	<i>Terminalia arjuna</i> Roxb.	Combretaceae	Kahu	The equal amount of bark of <i>Terminalia arjuna</i> , <i>Madhuca indica</i> and <i>Syzygium cuminii</i> are taken to make decoction. Half a cup of the decoction is given orally to treat diabetes.
60	<i>Terminalia bellirica</i> Roxb.	Combretaceae	Bahra	The powder of dry fruits is used as ingredients for <i>triphala churna</i> , which is used for stomachache and

				grastic.
61	<i>Terminalia chebula</i> Retz.	Combretaceae	Harra	The powder of dry fruits is used as ingredients for <i>triphala churna</i> .
62	<i>Terminalia tomentosa</i>	Combretaceae	Piriya	The equal amount of bark of <i>T. tomentosa</i> , <i>T. belerica</i> and <i>Agnogeissus latifolia</i> are taken to make decoction which is given for cholera. The bark paste is applied on head for dandruff.
63	<i>Tinospora cordifolia</i> Willd	Menispermaceae	Giloy	The stem latex is mixed with the bark powder of <i>Azadiracta indica</i> to make pellet. The pellets are given orally for malaria. The pellets made of stem latex is given to treat leucorrhea. The latex is also mixed with the root powder of <i>safed musali</i> , <i>kali musali</i> and <i>shatavar</i> to pellets which are given orally for sexual weakness and impotency.
64	<i>Tridax procumbens</i> Linn.	Asteraceae	Munya arxa	The leaves are crushed and the juice is dripped on the wound of snake bite (karait & cobra). Some juice is applied on the body part of snake bite. The leaf paste is dissolved in a cup of water and given orally to treat diarrhoea and dysentery.
65	<i>Vitex negundo</i> Linn.	Verbenaceae	Sindwair	Dry leaves are burnt inside the house to repel mosquito. The root decoction is given orally with black pepper to treat leprosy, arthritis and fever.
66	<i>Vitex penduncularis</i> Wall	Verbenaceae	Charaigorh	The paste solution of the bark is given orally for snake bite (viper) at half an hour interval. The tea of bark or the leaves is taken to high blood pressure, malaria and fever.
67	<i>Vitis quadrangularis</i> Linn.	Vitaceae	Harjora	The stem paste is used as plaster to treat bone fractures in animals & humans.

Figure 1. Map showing location of Latehar District in Jharkhand, India [16, 17]



Figure 2. Number of species and plant parts

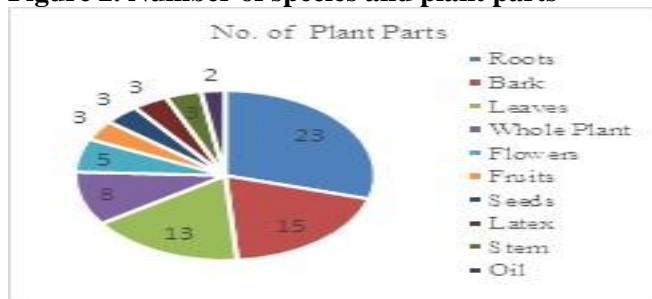
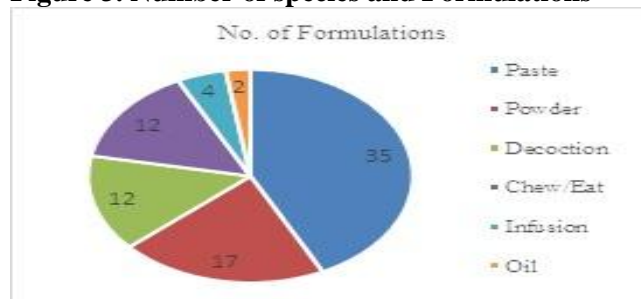


Figure 3. Number of species and Formulations



DISCUSSION

The documentation of Ethnomedicinal plants started years back in 1925 by Bodding which was ushered further by Botanical Survey of India in 1969. Since then uses of medicinal plants by the tribals are being recorded for a variety of purposes [19]. The tribals depend on the plants among which they live and acquire knowledge of economic and medicinal properties of plants by trial and error. They are gradually losing the ancestral wisdom due to oral inheritance of the ethno-medicinal knowledge, and also getting quantitatively or qualitatively distorted in formulations [1, 7]. The other factor of losing accumulated knowledge is the modern education which alienates the well-educated tribals from their own system of medicine as they believe more in modern medicine. It is therefore essential to study ethnobotany and it must be documented and preserved because most of the tribals are being assimilated into modern societies and the treasure of knowledge of uses of plants resources is fast disappearing [1]. Sinha *et al.*, 2007, observed that the tribals have commendable knowledge of the medicinal of plants to treat stomach ailments [20]. The author observed that the local folk treat not only diarrhoea and dysentery but also prevent malaria, alleviate snake venom, eliminate sexual related ailments and sexual debility effectively with herbal preparations. Hence, they are to be substantiated with pharmacognosy for their efficacies.

The Conservation of Biodiversity of the Ethnomedicinal plants is an area of major concern. The endangered plant species viz. *Hemidesmus indicus*, *Gloriosa superba*, *Asparagus racemosus*, *Chlorophytum arundinaceum*, *Andrographis paniculata*, *Withania somnifera*, *Vitex peduncularis*, *Adhatoda vasica* and

Oroxylum indicum are on the verge of depletion due to illegal trading by the petty businessmen who allure the local folk to harvest them at cheap cost. The much sought after species viz. *Tinospora cordifolia*, *Vitex quadrangularis* and *Pterospermum acerifolium* are becoming rare. The tribals have identified several medicinal plants for their healthcare and wellbeing. They worship them and ask forgiveness before cutting of them for their livelihood. They have several socio-religious practices for the sustainable use of the plants around which they live. On the contrary, the government and the elite bureaucrats have often punished them under the banner of deforestation. Moreover, conservation of biodiversity and the sustainable use of plant resources requires due attention. It is the need of the hour to focus immediate attention for the plant conservation from the government and NGOs with the cooperation of rural tribals for creating awareness in all sections of people [1]. There is a need of better understanding among pharmaceutical companies, traders and forest departments to encourage local folks to cultivate endangered and rare plant species in order to conserve and exploit them in a sustainable manner. This will also lead the social upliftment and economic improvement of the local tribals.

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